Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.   (Currently Amended) A method for calibrating one or more printheads, the method comprising:

    printing a first reference image using a first portion of image forming points of a first printhead;

    printing a first diagnostic image using a second portion of image forming points of ~~either~~ the first printhead ~~or a second printhead~~, wherein the first reference image and the first diagnostic image at least partially overlap;

    detecting a first optical density of the combined first reference image and the first diagnostic image; and

    determining a compensation value based upon the first optical density.

2.   (Original) The method of Claim 1, wherein the first portion of image forming points comprises a first segment of a column of image forming points and wherein the second portion comprises a second segment of the column of image forming points on the first printhead.

3.   (Canceled)

4.   (Canceled)

5.   (Canceled)

6.   (Original) The method of Claim 1 including advancing the print media a distance such that the first reference image and the diagnostic image are in vertical alignment.

7.   (Original) The method of Claim 1 including adjusting a time at which the first portion dispenses ink based upon the compensation value.

8.   (Original) The method of Claim 1 including forming images using the first portion and the second portion at different times based upon the compensation value.

9.   (Currently Amended) The method of Claim 1, wherein the first reference image is printed while the first printhead is at a first horizontal position and wherein the first diagnostic image is printed while ~~said one of~~ the first printhead ~~and the second printhead~~ is at the first horizontal position.

10.   (Currently Amended) The method of Claim 9 including:

printing a second reference image with the first portion of the first printhead while the first printhead is at a second horizontal position;

printing a second diagnostic image with the second portion while ~~said one of~~ the first printhead ~~and the second printhead~~ is at a third horizontal position positively offset from the second horizontal position by a first offset distance;

detecting a second optical density of the combined second reference image and the second diagnostic image, wherein the compensation value is additionally based upon the second optical density.

11.   (Original) The method of Claim 10, wherein the first reference image includes at least one mark having a width and wherein the first offset distance is no greater than the width.

12.   (Original) The method of Claim 10, wherein the first horizontal position and the second horizontal position have a common location.

13.   (Currently Amended) The method of Claim 10 including:

printing a third reference image with the first portion while the first printhead is at a fourth horizontal position;

printing a third diagnostic image with the second portion while ~~said one of~~ the first printhead ~~and the second printhead~~ is at a fifth horizontal position positively offset from the fourth horizontal position by a second offset distance greater than the first offset distance; and

detecting a third optical density of a combination of the third reference image and the third diagnostic image, wherein the compensation value is determined based additionally upon the third optical density.

14. (Original) The method of Claim 13, wherein the third reference image includes at least one mark, wherein each mark has a width and wherein the third offset distance is less than the width.

15. (Original) The method of Claim 13, wherein the third horizontal position is offset from the second horizontal position in a first direction and wherein the fifth horizontal position is offset from the third horizontal position in the first direction.

16. (Currently Amended) The method of Claim 15 including:

printing a fourth reference image with the first portion while the first printhead is at a sixth horizontal position;

printing a fourth diagnostic with the second portion while ~~said one of~~ the first printhead is ~~and the second printhead are~~ at a seventh horizontal position negatively offset from the sixth horizontal position by a third distance offset; and

detecting a fourth optical density of a combination of the fourth reference image and the fourth diagnostic image, wherein the compensation value is determined based additionally upon the fourth optical density.

17. (Currently Amended) The method of Claim 16 including:

printing a fifth reference image using the first portion while the first printhead is at an eighth horizontal position;

printing a fifth diagnostic image using the second portion while ~~said one of~~ the first printhead ~~and the second printhead~~ is at a ninth horizontal position negatively offset from the eighth horizontal position by a fourth distance greater than the third distance; and

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detecting a fifth optical density of a combination of the fifth reference image and the fifth diagnostic image, wherein the compensation value is determined based additionally upon the fifth optical density.

18.   (Original) The method of Claim 1, wherein the first portion and the second portion comprise identical portions of the first printhead, wherein the first portion is printed during overall movement as the first printhead in a forward direction and wherein the second portion is printed during overall movement the first printhead in a reverse direction.

19.   (Original) The method of Claim 1 wherein the first reference image has a first color and wherein the first diagnostic image has a second color distinct from the first color.

20.   (Currently Amended) The method of Claim 1, wherein a plurality of horizontal printhead error compensation values are determined by printing the first reference image and the first diagnostic image each a plurality of times while the first printhead and said one of the first printhead is and the second printhead are scanned across the medium at a plurality of different print speeds.

21.   (Original) The method of Claim 20, wherein at least one image forming points is in both the first portion and the second portion.

22.   (Original) The method of Claim 1, wherein the first portion and the second portion have mutually exclusive image forming points.

23.   (Currently Amended) The method of Claim 1, wherein the first portion is designed to be spaced from the second portion by a predetermined distance in a first direction, wherein the first diagnostic image is printed on the print medium using the first portion while the first printhead is at a first horizontal position and wherein the second diagnostic image is printed upon the print medium using the second portion while said one of the first printhead and the second printhead is at a second horizontal position spaced from the first position by the predetermined distance in the first direction.

24. (Original) The method of Claim 23, wherein the second portion is on the first printhead.

25. (Currently Amended) The method of Claim 1, wherein the first reference image includes a first plurality of marks, wherein each of the first plurality of marks is printed upon the medium using the first portion of the first printhead and wherein the first diagnostic image includes a second plurality of marks, wherein each of the second plurality of marks is printed upon the medium using the second portion of ~~said one of~~ the first printhead ~~and the second printhead~~.

26. (Original) The method of Claim 1, wherein the first portion and the second portion each include a plurality of image forming points.

27. (Original) The method of Claim 1, wherein the first reference image is printed by dispensing a material from the first portion of image forming points.

28. (Original) The method of Claim 1, wherein the first reference image is printed by applying heat with the first portion of image forming points.

29. (Canceled)

30. (Original) The method of Claim 1 including moving the first printhead along a single scan axis while printing both the first reference image and the first diagnostic image.

31. (Original) The method of Claim 1, wherein the first reference image and the first diagnostic image each include at least one mark having a major height in a first direction and a minor width and wherein the first reference image and the first diagnostic image are offset from one another perpendicular to the first direction.

32. (Previously Presented) A printing system comprising:

a printhead having image forming points;

a sensor; and

a controller, wherein the controller is configured to generate first control signal and a second control signal, wherein the printhead is configured to print a reference image upon the print medium using a first portion of the image forming points and a diagnostic image upon the print medium using a second portion of the image forming points in response to the first control signal, wherein the reference image and the diagnostic image at least partially overlap, wherein the sensor is configured to determine an optical density of a combination of the reference image and the diagnostic image in response to the second control signal, wherein the optical density varies depending upon an extent to which the reference image and the diagnostic image overlap, and the controller is configured to determine a compensation value based upon the optical density.

33.   (Original) The system of Claim 32, wherein the controller is configured to generate a third control signal based upon the determined compensation value and wherein the carriage mechanism is configured to move the printhead in response to the third control signals.

34.   (Original) The system of Claim 32, wherein the controller is configured to generate third control signals and wherein the media handling system is configured to advance the print medium between printing of the reference image and the diagnostic image in response to the third control signals.

35.   (Original) The system of Claim 32 including moving the first printhead along a single scan axis while printing both the reference image and the diagnostic image.

36.   (Original) The system of Claim 32, wherein the reference image and the diagnostic image each include at least one mark having a major height in a first direction and a minor width and wherein the reference image and the diagnostic image are offset from one another perpendicular to the first direction.

37.   (Canceled)

38.   (Canceled)

39.   (Canceled)

40.   (Currently Amended) A computer-readable media comprising:

executable instructions configured to direct a printing system to:

print a reference image on a print medium using a first portion of image forming points of a first printhead;

print a diagnostic image on the print medium using a second portion of image forming points ~~of one~~ of the first printhead ~~and a second printhead,~~ wherein the reference image and the diagnostic image at least partially overlap;

detect an optical density of a combination of the reference image and the diagnostic image, wherein the optical density varies depending upon an extent to which the reference image and the diagnostic image overlap; and

determine a compensation value for at least one of the first portion and the second portion based on the optical density.

41.   (Currently Amended) A printing system comprising:

~~at least one~~ a printhead configured to form referenee and diagnostic images using a first portion and a second portion of the ~~at least one~~ printhead, wherein at least some of the reference and diagnostic images at least partially overlap;

a sensor configured to detect optical densities of the images, wherein the optical densities vary depending upon an extent to which the reference images and the diagnostic images overlap;

a processor configured to determine a compensation value for the second portion relative to the first portion from the optical densities; and

a carriage drive configured to be calibrated based upon the compensation value.

42. (Currently Amended) A printing system comprising:

means for printing a reference image extending along an axis on a print medium with a first portion of a printhead;

means for printing a diagnostic image extending along the axis on the print medium with a second portion of the printhead, wherein the reference image and the diagnostic image at least partially overlap;

means for detecting an optical density of a combination of the reference image and the diagnostic image, wherein the optical density varies depending upon an extent to which the reference image and the diagnostic image overlap; and

means for determining a compensation value based on the optical density.

43. (Currently Amended) A method for calibrating one or more printheads, the method comprising:

printing patches of reference images and diagnostic images across a range of relative offsets between the reference images and their corresponding diagnostic images, wherein each reference image is formed using a first portion of image forming points of a first printhead and wherein each diagnostic image is formed using a second portion of image forming points of either the first printhead or a second printhead and wherein at least some of the reference images and their corresponding diagnostic images at least partially overlap;

detecting optical densities of the patches, wherein the optical densities vary depending upon an extent to which the reference images and the diagnostic images overlap,; and

determining a compensation value for the second portion based upon the detected optical densities.

44. (Previously Presented) The method of claim 1, wherein the first reference image and the first diagnostic image are a same color.

45. (Previously Presented) The sytem of claim 32, wherein the reference image and the diagnostic image are a same color.

46. (Previously Presented) The system of claim 42, wherein the reference images and the diagnostic images are a same color.

47.   (New) A method for calibrating one or more printheads, the method comprising:

printing a first reference image using a first portion of image forming points of a first printhead;

printing a first diagnostic image using a second portion of image forming points of either the first printhead or a second printhead, wherein the first reference image and the first diagnostic image at least partially overlap, wherein the first reference image is printed while the first printhead is at a first horizontal position and wherein the first diagnostic image is printed while said one of the first printhead and the second printhead is at the first horizontal position;

detecting a first optical density of the combined first reference image and the first diagnostic image; and

determining a compensation value based upon the first optical density.

48.   (New) The method of Claim 47 including:

printing a second reference image with the first portion of the first printhead while the first printhead is at a second horizontal position;

printing a second diagnostic image with the second portion while said one of the first printhead and the second printhead is at a third horizontal position positively offset from the second horizontal position by a first offset distance;

detecting a second optical density of the combined second reference image and the second diagnostic image, wherein the compensation value is additionally based upon the second optical density.

49.   (New) The method of Claim 48, wherein the first reference image includes at least one mark having a width and wherein the first offset distance is no greater than the width.

50.   (New) The method of Claim 48, wherein the first horizontal position and the second horizontal position have a common location.

51.   (New) A method for calibrating one or more printheads, the method comprising:

printing a first reference image using a first portion of image forming points of a first printhead;

printing a first diagnostic image using a second portion of image forming points of either the first printhead or a second printhead, wherein the first reference image and the first

diagnostic image at least partially overlap, wherein the first reference image has a first color and wherein the first diagnostic image has a second color distinct from the first color;

detecting a first optical density of the combined first reference image and the first diagnostic image; and

determining a compensation value based upon the first optical density.

52.   (New) A method for calibrating one or more printheads, the method comprising:

printing a first reference image using a first portion of image forming points of a first printhead;

printing a first diagnostic image using a second portion of image forming points of either the first printhead or a second printhead, wherein the first reference image and the first diagnostic image at least partially overlap;

detecting a first optical density of the combined first reference image and the first diagnostic image; and

determining a compensation value based upon the first optical density, wherein a plurality of horizontal printhead error compensation values are determined by printing the first reference image and the first diagnostic image each a plurality of times while the first printhead and said one of the first printhead and the second printhead are scanned across the medium at a plurality of different print speeds.